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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/459,598	12/14/1999	SHARON LEVY	162/01172	1376
27130	7590	02/09/2004	EXAMINER	
EITAN, PEARL, LATZER & COHEN ZEDEK LLP 10 ROCKEFELLER PLAZA, SUITE 1001 NEW YORK, NY 10020			CHAUDRY, MUJTABA M	
			ART UNIT	PAPER NUMBER
			2133	18

DATE MAILED: 02/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/459,598

Applicant(s)

LEVY, SHARON

Examiner

Mujtaba K Chaudry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,11,15-19,21-24,26,27,29-31 and 33 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,10,12-14,20,25,28,32 and 34-42 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 43-49 is/are allowed.
- 6) ☒ Claim(s) 1,4-9,11,15-19,21-24,26,27,29-31 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 02, 2003 has been entered.

Response to Amendment

Applicant's arguments/amendments with respect to amended claims 1, 5-9, 11, 15, 17-19, 21-24, 26, 27, 29, 33 and previously presented claims 4, 16, 30 and 31 filed October 02, 2003 have been fully considered but are not persuasive. As a note of reference, claims 2-3, 10, 12-14, 20, 25, 28, 32 and 34-42 have been withdrawn from consideration because they were canceled. Furthermore, claims 43-49 are allowed as amended.

Applicant contends, "...neither Lerzar nor Viterbi, alone or in combination teach or suggest 'recursively calculating state metric vectors from a block of symbols and storing at a first storage area reference vectors corresponding to a selected group of the calculated state metric vectors' as recited in claim 1 of the present application." The Examiner disagrees. Lerzar teaches (Figure 2 and col. 7, lines 13-53) a decoder with a number of different functional blocks which operate as follows. The BTMs are calculated in BTMC units 20 and 22 in a manner which is

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determined by the particular version of the MAP algorithm which is employed by the decoder. For example, the branch metrics are calculated according to equation (1) if the MAP algorithm is used, according to equation (1') if the Log-MAP algorithm is used, or according to equation (1'') if the Max-Log-MAP algorithm is used. The forward state metrics are calculated in FSMC unit 24 in a manner which depends upon the MAP variant to be used in the decoder. That is, the FSMs are calculated according to equation (2), if the MAP algorithm is used, according to equation (2'), if the Log-MAP algorithm is used, and according to equation (2''), if the Max-Log-MAP algorithm is used. Similarly, the reverse state metrics are calculated in RSMC unit 26 according to equation (3), if the MAP algorithm is used, according to equation (3'), if the Log-MAP algorithm is used, and according to equation (3''), if the Max-Log-MAP algorithm is used. The likelihood ratios are calculated in LRC units 28 and 30 using the branch metrics, forward state metrics and reverse state metrics determined in units 20, 22, 24 and 26. Specifically, the likelihood ratios are calculated according to equation (4), if the MAP algorithm is used, according to equation (4'), if the Log-MAP algorithm is used, and according to equation (4''), if the Max-Log-MAP algorithm is used. Particularly, the Examiner would like to point out that in Figure 2, Lerzar teaches delay elements 32 and 34 as well as storage elements 36 and 38. These elements are used to buffer and control the presentation of metric values to the LRC units 28 and 30, by timing and control unit 40. Lerzar teaches that the signal lines from the timing and control unit 40 to the other functional blocks of FIG. 2 have been omitted. Furthermore, the Examiner would like to point out that the first storage area of claim 1 in the present application is analogous to the FSM storage 36 and the second storage area is analogous to the RSM storage

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38. Also, the terms calculating and re-calculating are analogous to forward state-metric calculation and reverse state-metric calculation, respectively.

Applicant contends, "...neither Lerzer nor Viterbi teach... 'storing selected reference vectors from the calculated state metric vectors.'" However, Lerzer does teach the foregoing limitation as stated above. Storage elements 36 and 38 of Figure 2 in Lerzer clearly show to store calculated state metrics from calculators 24 and 26 respectively.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Amended Claims 1, 5-9, 11, 15, 17-19, 21-24, 26, 27, 29, 33 and previously presented claims 4, 16, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lerzer (USPN 6343368B1) further in view of Viterbi et al (USPN 5933462). See paper No. 5.

The Examiner disagrees with the Applicant and rejections amended claims 1, 5-9, 11, 15, 17-19, 21-24, 26, 27, 29, 33, 43-49 and previously presented claims 4, 16, 30 and 31. All arguments have been considered. As per claims 43-49, which were noted as allowable subject matter in previous action (Paper No. 12), they are hereby allowed. It is the Examiner's conclusion that

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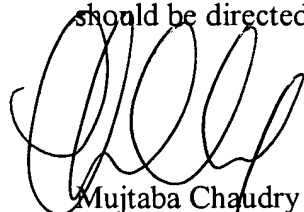
amended 1, 5-9, 11, 15, 17-19, 21-24, 26, 27, 29, 33, 43-49 and previously presented claims 4, 16, 30 and 31 are not patentably distinct or non-obvious over the prior art of record (see paper no 5).

Conclusion

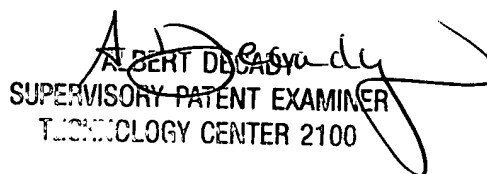
Any inquiries concerning this communication should be directed to the examiner, Mujtaba Chaudry who may be reached at 703-305-7755. The examiner may normally be reached Mon – Thur 7:30 am to 4:30 pm and every other Fri 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner's supervisor, Albert DeCady at 703-305-9595. The fax phone number for the organization where this application is assigned is 703-746-7239.

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the receptionist at 703-305-3900.



Mujtaba Chaudry
Art Unit 2133
February 6, 2004



ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100